

FEATURES

- Low leakage current, long life
- High Temperature
- Small size and low-resistance
- Temperature 85°C/85% Humidity
- RoHS Directive Compliant

APPLICATIONS

- Scanners,Medical equipment,Main power ,Back up power , UPS/Industrial ,Wireless Alarms,Water and gas smart meters.

OPERATING TEMPERATURE RANGE

- -40°C to +85°C @5.5V Balanced, 5.0V Unbalanced

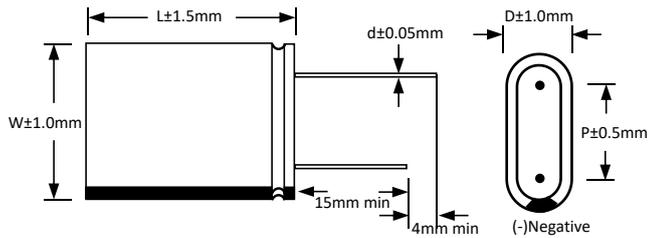


GENERAL SPECIFICATIONS

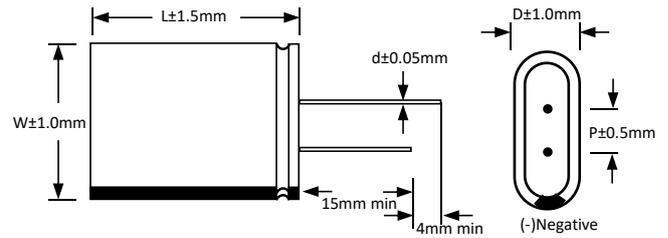
Item	Performance
Operating temperature	-40°C to +85°C
Capacitance range	0.47F to 50F
Capacitance tolerance	-20%~+50%;-20%~+20%
Rated voltage	5.5 V
Surge voltage	5.7 V
Temperature characteristics	Capacitance change: Within ±30% of initial measured value at +25°C Internal resistance: Within ±200% of initial measured value at +25°C
High temperature load time	After 85°C 1000 hours H:85% (at 5.0V) Capacitance change: ±30% of initial rated value Internal resistance: Within 3 times of initial specified value
Projected cycle life (From rated voltage to 1/2 rated voltage at 25°C)	After 500,000 cycles: Capacitance change: Within ±30 % of initial rated value Internal resistance: Within 2 times of initial specified value
Humidity characteristic	Relative humidity: 90%~95% /Duration of testing:240 hrs /Temperature:40±2°C Capacitance change: Within ±30 % of initial rated value Internal resistance: Within 2 times of initial specified value
Vibration resistance	Amplitude:1.5mm /Frequency:10~55Hz /Duration of testing:6 hrs Capacitance change: Within ±30 % of initial rated value Internal resistance: Within 2 times of initial specified value
Shelf life	After 2 years at 25°C without load, the capacitor shall meet the specified endurance limits.

DIMENSIONS

DA Type:



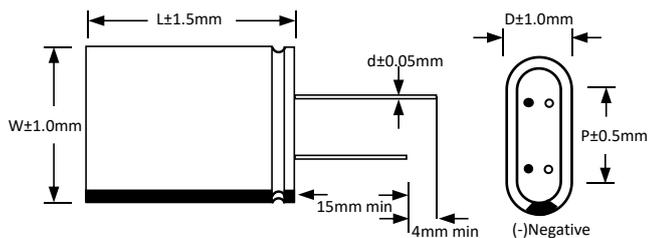
DB Type:



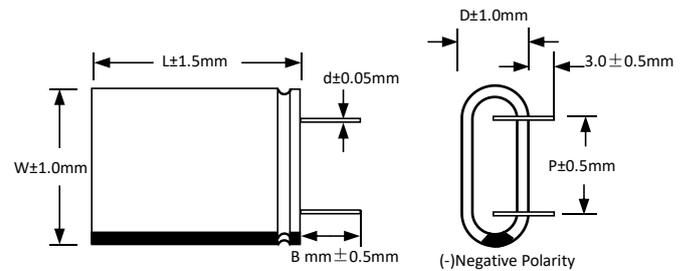
Cell Dia	D	W	P(mm)		Φd
			DA Type	DB Type	
Φ4.0	4	12	5.8	2.5	0.5
Φ5.0	5	12	7.5	3.5	0.5
Φ6.3	6.3	14	10.0	5.0	0.6
Φ8.0	8	16	11.5	5.0	0.6
Φ10.0	10	20	15.5	5.0	0.6
Φ12.5	12.5	25	17.5	7.5	0.6
Φ16.0	16	32	24.0	8.5	0.8
Φ18.0	18	60	26.0	10.5	0.8

*for version with bent leads

DC Type:



DZ Type: RADIAL BENT LEAD



Cell Dia	D	W	P(mm)			Φd
			DC Type	DZ Type	B(mm)	
Φ4.0	4	12	/	5.8	2.0	0.5
Φ5.0	5	12	/	7.5	2.0	0.5
Φ6.3	6.3	14	/	10.0	2.0	0.6
Φ8.0	8	16	8.0	11.5	2.0	0.6
Φ10.0	10	20	10.0	15.5	2.0	0.6
Φ12.5	12.5	25	13.0	17.5	2.0	0.6
Φ16.0	16	32	16.0	24.0	2.0	0.8
Φ18.0	18	60	20.0	26.0	2.0	0.8

*for version with bent leads

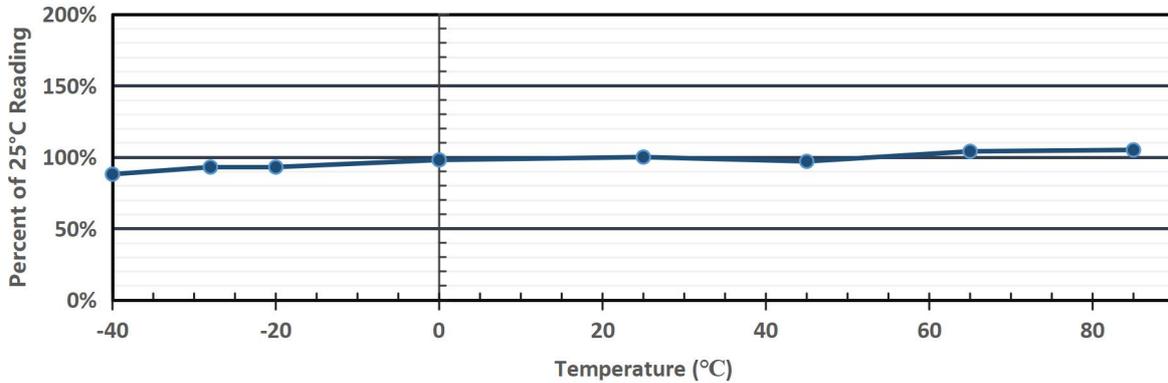
STANDARD PRODUCTS

Part Number	Rated Voltage (V)	Rated Cap. (F)	Size ΦWxDxL (mm)	Max.ESR		Maximum Endurance Current(A)	Maximum Peak Current(A)	Maximum Leakage Current (72hrs/mA)	Power Density (W/Kg)	Maximum Energy (W.h)	Energy Density (Wh/kg)
				ESRAC (1kHz/mΩ)	ESRDC (mΩ)						
5.5V Series-Connected SuperCapacitors Modules(Miniaturized)											
CHT-5R5L104R-TW	5.5	0.1	10*5*12	900	1800	0.09	0.17	0.001	660	0.00042	0.38
CHT-5R5L124R-TW	5.5	0.12	9*4*12	2000	3600	0.09	0.17	0.001	693	0.00045	0.38
CHT-5R5L224R-TWX	5.5	0.22	10*5*14	800	1500	0.12	0.42	0.002	1117	0.00092	0.92
CHT-5R5L224R-TW	5.5	0.22	13*7*14	400	800	0.14	0.60	0.006	3025	0.00092	1.00
CHT-5R5L474R-TWQ	5.5	0.47	9*4*27	1100	1800	0.18	0.54	0.003	2046	0.0019	1.78
CHT-5R5L504R-TWX	5.5	0.5	13*7*14	400	1000	0.16	0.66	0.006	2499	0.0020	1.36
CHT-5R5L155R-TWQ	5.5	1.5	13*7*24	190	380	0.53	2.71	0.010	2880	0.0070	3.00
CHT-5R5L205R-TW	5.5	2.0	13*7*26	190	380	0.56	3.00	0.010	2400	0.0090	3.33
5.5V Series-Connected SuperCapacitors Modules											
CHT-5R5L474R-TW	5.5	0.47	16*8*14	320	480	0.47	1.05	0.006	3601	0.0020	0.94
CHT-5R5L504R-TW	5.5	0.50	16*8*14	320	400	0.50	1.08	0.006	3601	0.0021	1.00
CHT-5R5L105R-TW	5.5	1.0	16*8*18	240	360	0.61	2.02	0.010	4001	0.0042	1.67
CHT-5R5L155R-TW	5.5	1.5	16*8*22	200	300	0.74	2.84	0.012	3974	0.0063	2.07
CHT-5R5L255R-TWX	5.5	2.5	16*8*27	180	270	0.87	4.10	0.015	3283	0.0105	2.56
CHT-5R5L255R-TW	5.5	2.5	20*10*22	150	225	0.97	4.40	0.015	3201	0.0105	2.08
CHT-5R5L355R-TWX	5.5	3.5	20*10*27	120	180	1.20	5.90	0.020	3492	0.0147	2.55
CHT-5R5L355R-TW	5.5	3.5	20*10*22	140	200	1.00	5.55	0.022	3429	0.0147	2.92
CHT-5R5L505R-TW	5.5	5.0	20*10*27	120	180	1.20	7.24	0.030	3492	0.0210	3.64
CHT-5R5L505R-TWX	5.5	5.0	25*13*22	90	135	1.42	8.21	0.030	3461	0.0210	2.70
CHT-5R5L505R-TWQ	5.5	5.0	20*10*32	90	150	1.43	7.71	0.030	3461	0.0210	3.18
CHT-5R5L755R-TW	5.5	7.5	25*13*27	95	115	1.30	9.00	0.060	2180	0.0336	3.63
CHT-5R5L805R-TW	5.5	8.0	25*13*27	80	120	1.66	10.86	0.040	3741	0.0315	3.90
CHT-5R5L106R-TW	5.5	10	25*13*32	70	105	1.93	13.41	0.055	3658	0.0420	4.45
CHT-5R5L126R-TW	5.5	12.5	32*16*32	50	75	2.41	17.74	0.068	2955	0.0525	3.21
CHT-5R5L156R-TW	5.5	15	32*16*32	40	60	2.92	21.71	0.075	3350	0.0630	3.49
CHT-5R5L256R-TW	5.5	25	36*18*42	32	48	3.96	31.25	0.105	2739	0.1050	3.80
CHT-5R5L306R-TW	5.5	30	36*18*42	30	42	4.34	33.00	0.120	2503	0.1260	4.30
CHT-5R5L506R-TW	5.5	50	36*18*62	26	39	5.30	46.61	0.240	2062	0.2101	4.65

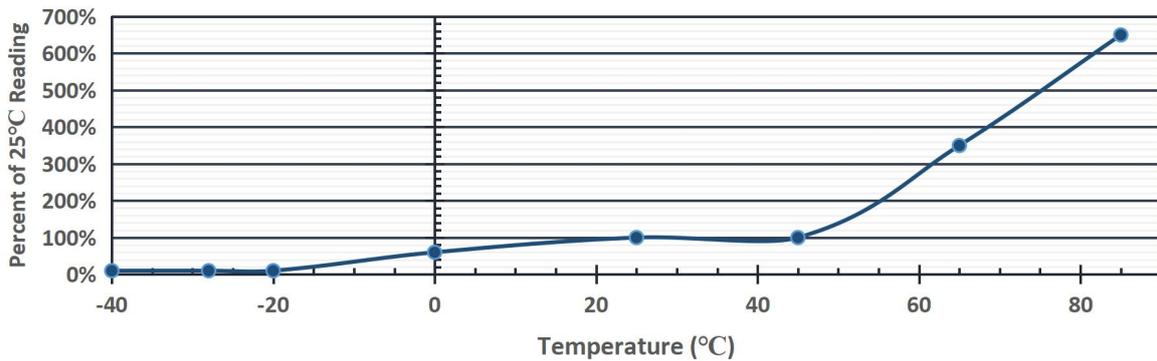
Note: Adds passive balance. Balance options can be provided upon request. Customers can choose according to the application.

QUALITY AND RELIABILITY

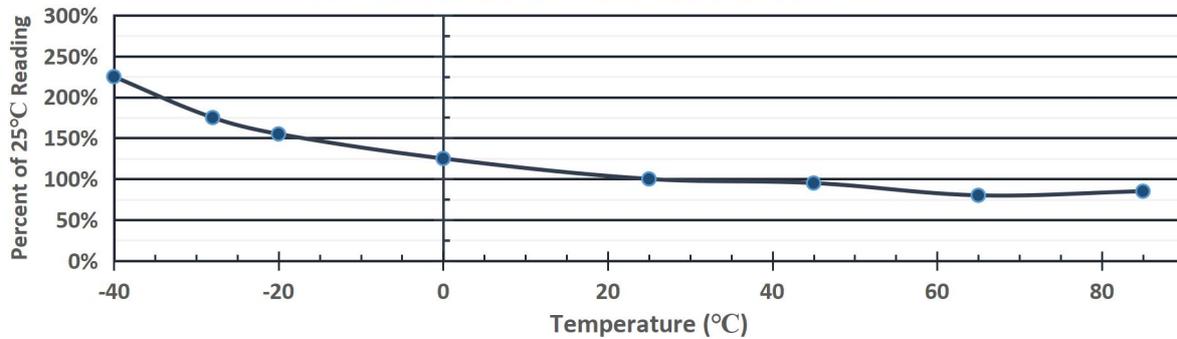
CAPACITANCE VS. TEMPERATURE



LEAKAGE CURRENT VS. TEMPERATURE



EQUIVALENT SERIES RESISTANCE VS. TEMPERATURE



LIFE TIME AND TEMPERATURE PERFORMANCE

The life of a Super Capacitor is impacted by a combination of operating voltage and the operating temperature according to the following equation :

$$LS = L_R \times 2^X \times 2^Y$$

Which is $X = (T_m - T_a) / 10$ $Y = (V_r - V_a) / 0.2$

L_s = Expected life of the super capacitor in the application

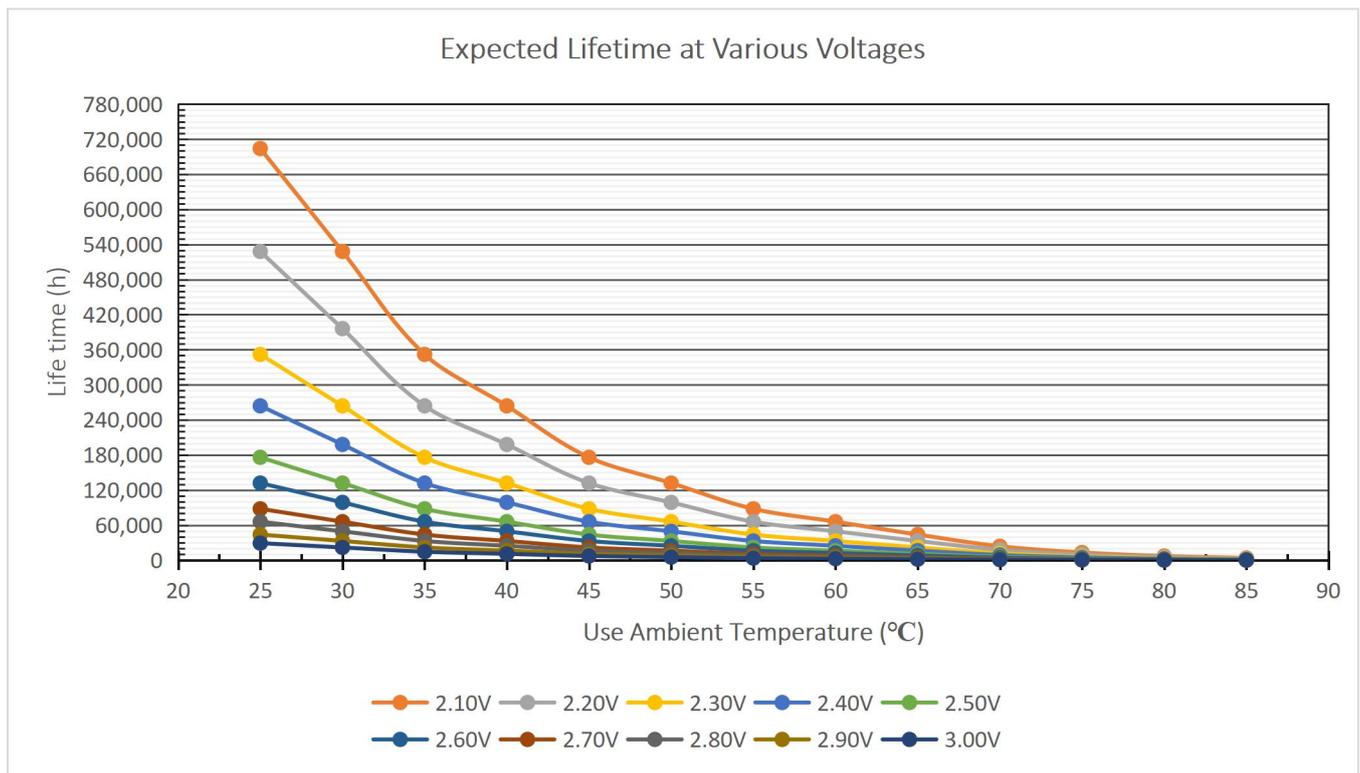
L_R = Load life rating of the super capacitor

T_m = Max temperature rating of the super capacitor

T_a = Ambient temperature of the application

V_r = Rated voltage of the super capacitor

V_a = Maximum applied voltage on the super capacitor in the application



SAFETY RECOMMENDATIONS

WARNINGS

- To Avoid Short Circuit, after usage or test, SuperCapacitors voltage needs to discharge to $\leq 0.1V$
- Do not Apply Overvoltage, Reverse Charge, Burn or Heat Higher than 150°C, explosion-proof valve may break open
- Do not Press, Damage or disassemble the SuperCapacitor, housing could heat to high temperature causing Burns
- If you observe Overheating or Burning Smell from the capacitor disconnect Power immediately, and do not touch

REGULATORY

- MSDS
- RoHS Compliant
- Reach Compliant

TRANSPORTATION

Not subjected to US DOT or IATA regulations
 UN3499, <10Wh, Non-Hazardous Goods
 International shipping description –
 “Electronic Products – Capacitor”

PRECAUTIONS FOR WELDING

When soldering supercapacitors to a PCB, the temperature & time that the body of the supercapacitor sees during soldering can have a negative effect on performance. We advise following these guidelines:

- Do not immerse the supercapacitors in solder. Only the leads should come in contact with the solder.
- Ensure that the body of the supercapacitor is never in contact with the molten solder, the PCB or other components during soldering.
- Excessive temperatures or excessive temperature cycling during soldering may cause the safety vent to burst or the case to shrink or crack, potentially damaging the PCB or other components, and significantly reduce the life of the capacitor.

HAND SOLDERING

Keep distance between the supercapacitor body and the tip of the soldering iron and the tip should never touch the body of the capacitor. Contact between supercapacitor body and soldering iron will cause extensive damage to the supercapacitor, and change its electrical properties. It is recommended that the soldering iron temperature should be less than 350°C, and contact time should be limited to less than 4 seconds. Too much exposure to terminal heat during soldering can cause heat to transfer to the body of the supercapacitor, potentially damaging the electrical properties of the supercapacitor.

WAVE SOLDERING

Only use wave soldering on Radial type supercapacitors. The PCB should be preheated only from the bottom and for less than 60 seconds, with temperature at, or below, 100°C on the top side of the board for PCBs equal to or greater than 0.8 mm thick.

Solder Temperature (°C)	Suggested Solder Time (s)	Maximum Solder Time (s)
220	7	9
240	7	9
250	5	7
260	3	5

REFLOW SOLDERING

Infrared or conveyor over reflow techniques can be used on these supercapacitors. Do not use a traditional reflow oven with-out clear rated reflow temperature for supercapacitors.